

Selamat Datang ke Ujian

KPP 2022



KPP TEST APPLICATION SYSTEM

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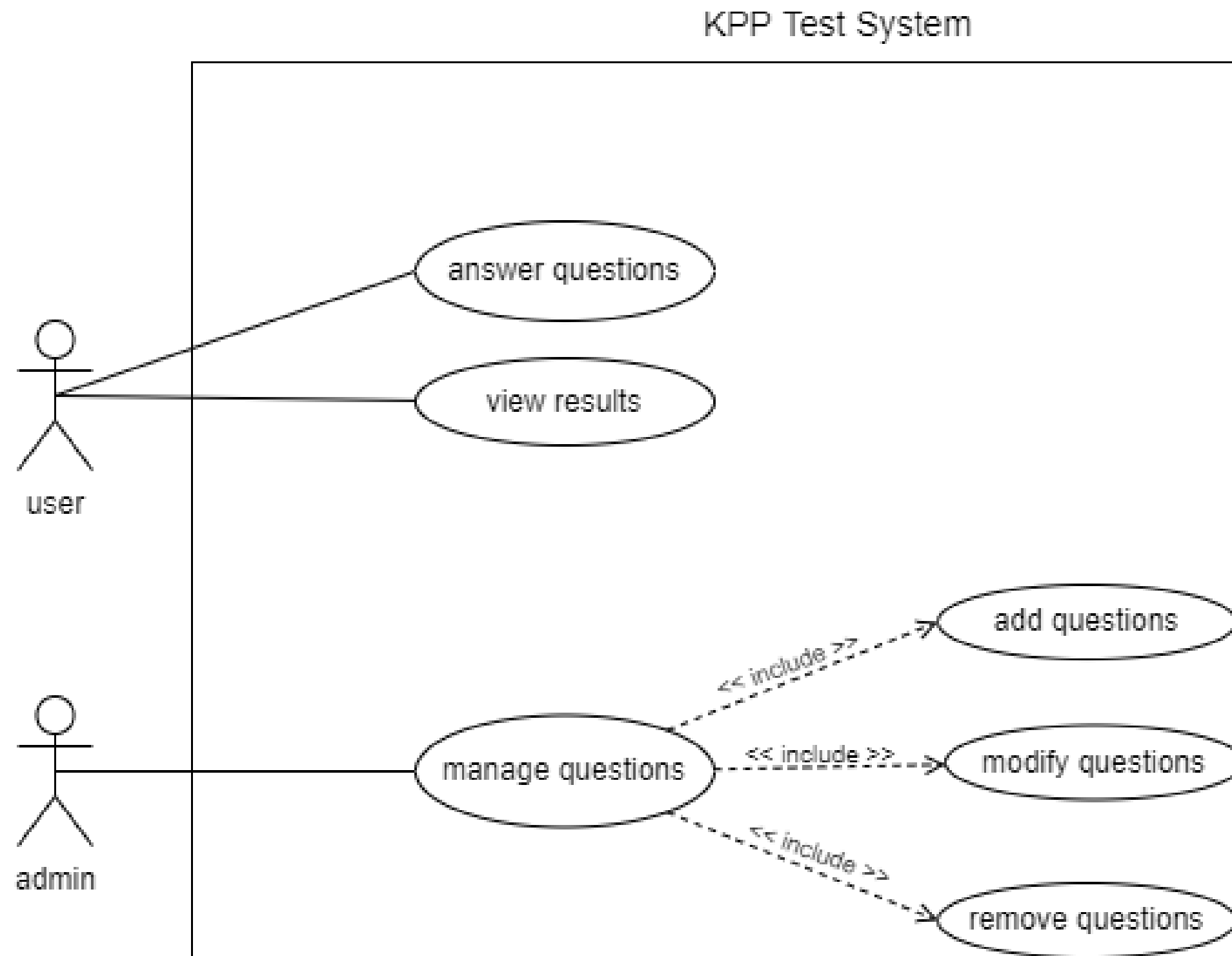
PROJECT OVERVIEW

KPP Test System is a web application that help its user to do some practices so that they are ready to sit for Malaysia's KPP Traffic Rules Test. There are two types of users, which are admin and normal user. The admin can add, update or delete question inside the application. On the other hand, a normal user just simply can answer the questions contained in the system.

ARCHITECTURE REQUIREMENT

Non-Functional Requirements and Constraint

USE CASE ARCHITECTURE



ARCHITECTURE NON-FUNCTIONAL REQUIREMENT

USABILITY

The web application must allow the user to use the features in the system efficiently.

AVAILABILITY

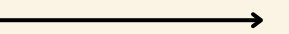
The web application must have a backup server that can take over failed server

SECURITY

- Customer needs to insert a valid identification card number before enter the system.
- Confidential information such as password must be secured

MODIFIABILITY

The web application must be easy to be modified in terms of interface and functionality.



CONSTRAINT

The application
must be a web
application

Must be available
for Windows

The application
must be available
for 20 hours a day

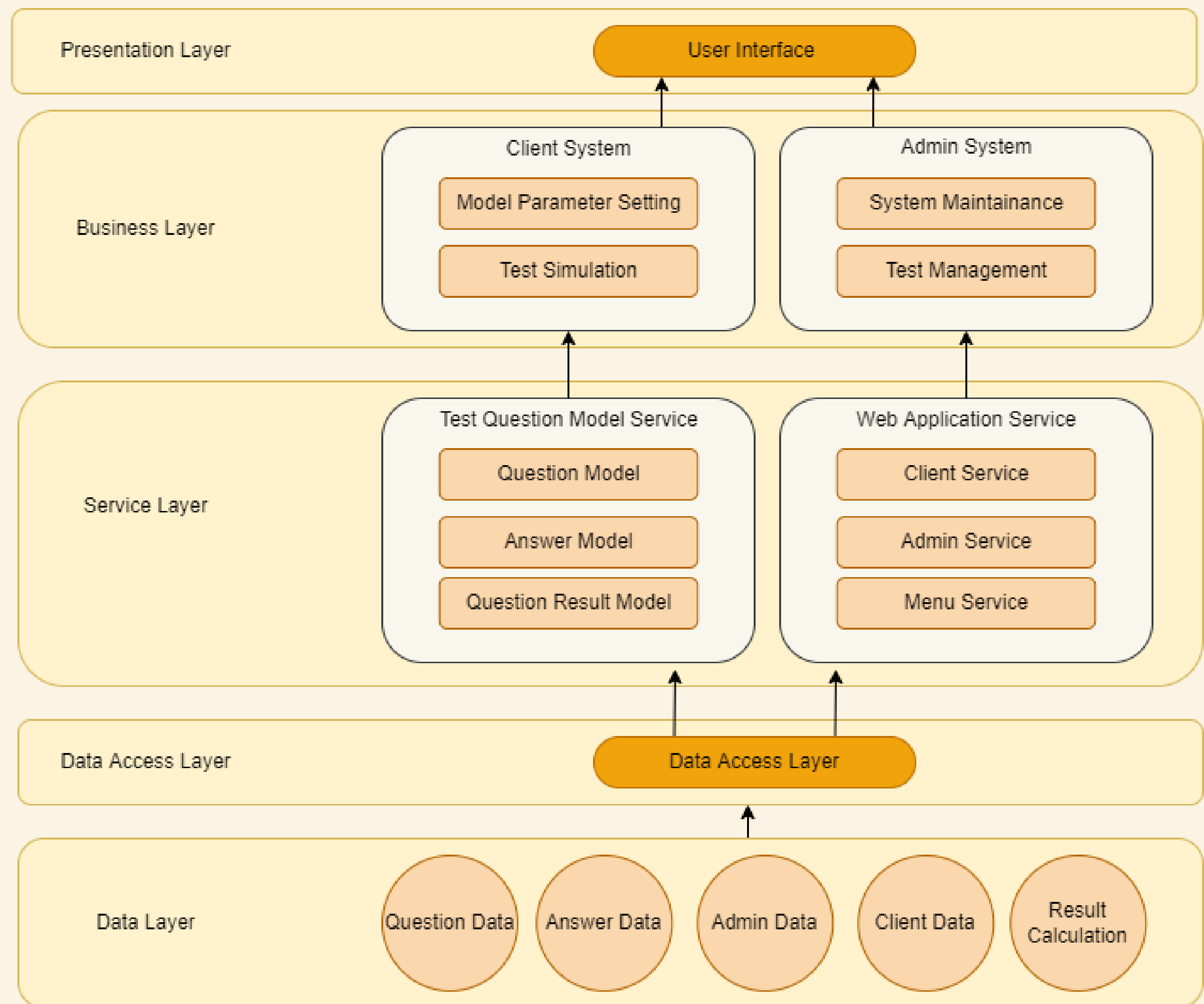


ARCHITECTURE DESIGN

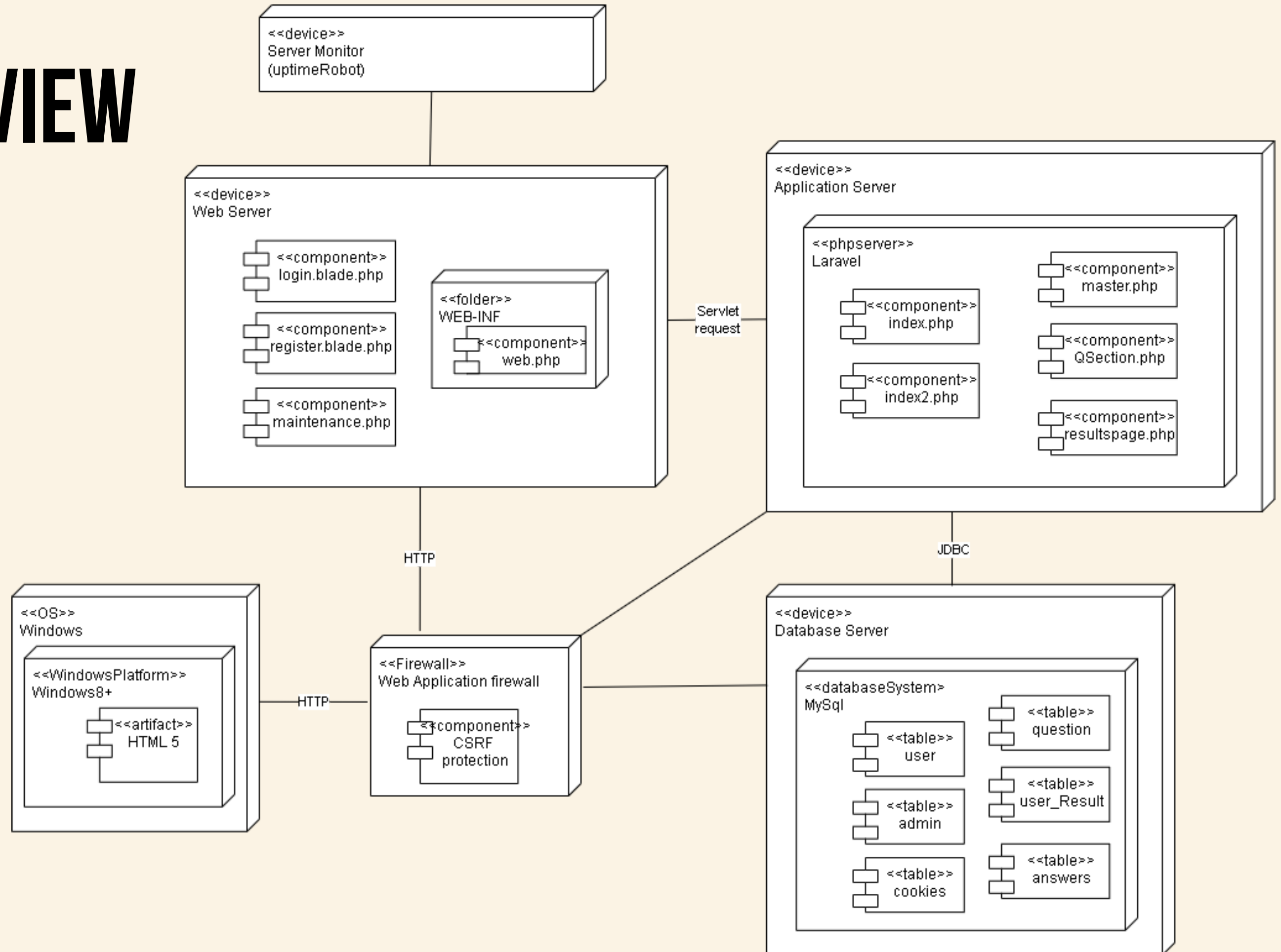
Architectural Styles and Technologies Decision

ARCHITECTURE STYLE

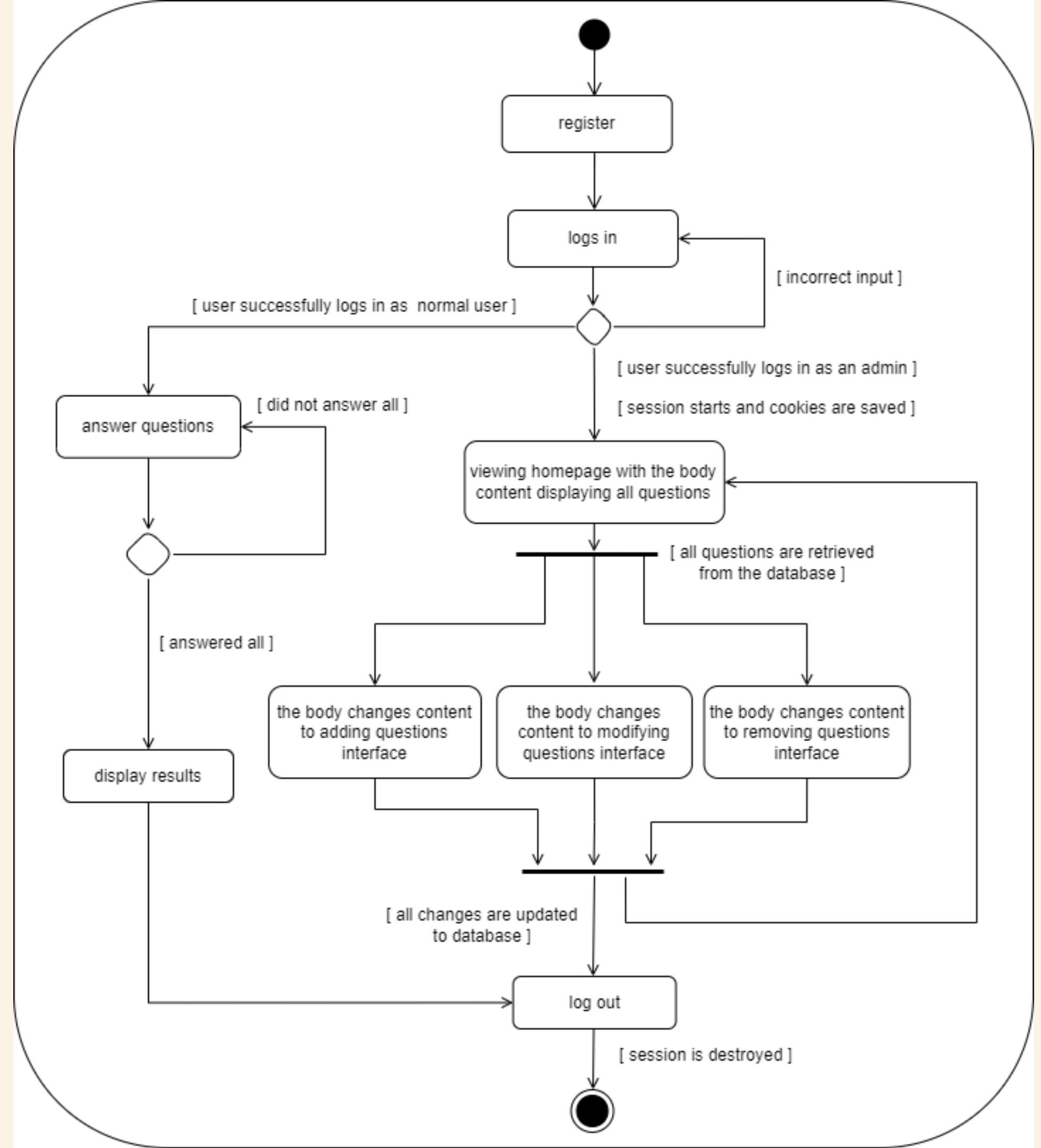
Layered Architecture



STRUCTURAL VIEW

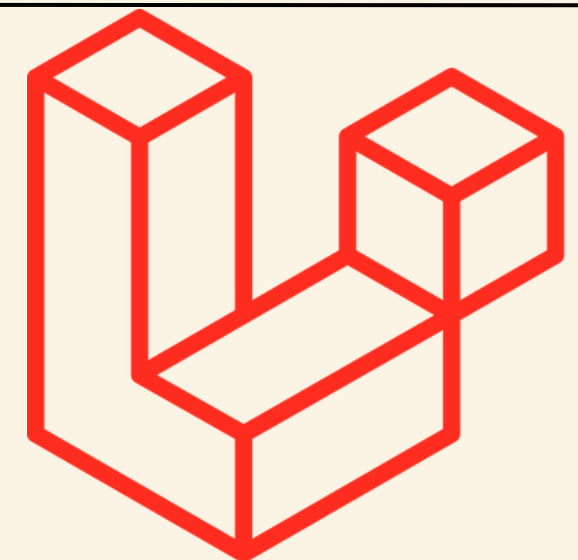


BEHAVIORAL VIEW



TECHNOLOGY DECISION

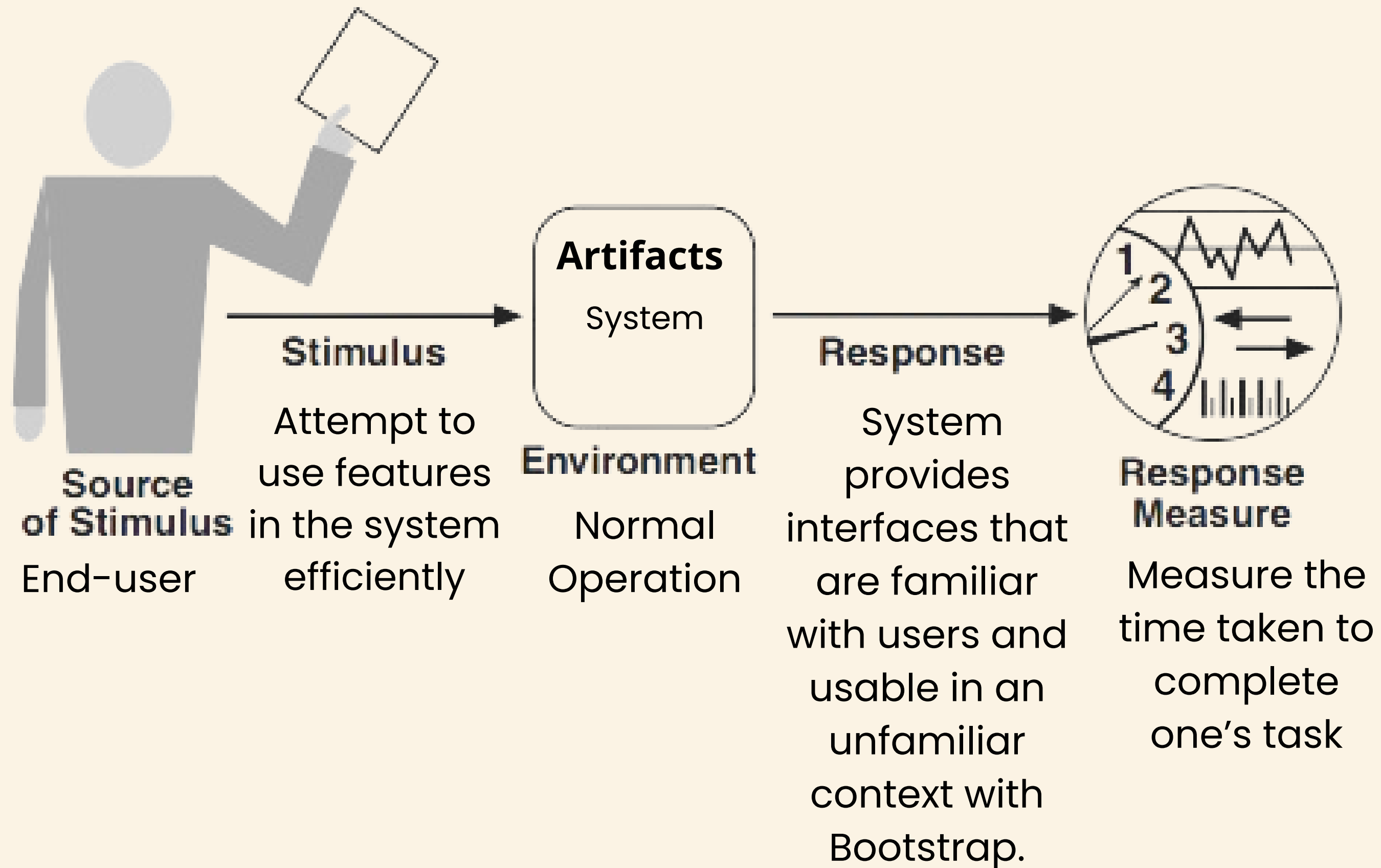
KPP Test System is a website application that can be build using Atom framework as frond-end system. The backend of this system is handled by PHP, Laravel and MySQL framework to store database.



SCENARIO ANALYSIS & IMPLEMENTATION

Scenario Analysis Based on Quality Attributes

SCENARIO - USABILITY



IMPLEMENTATION - USABILITY

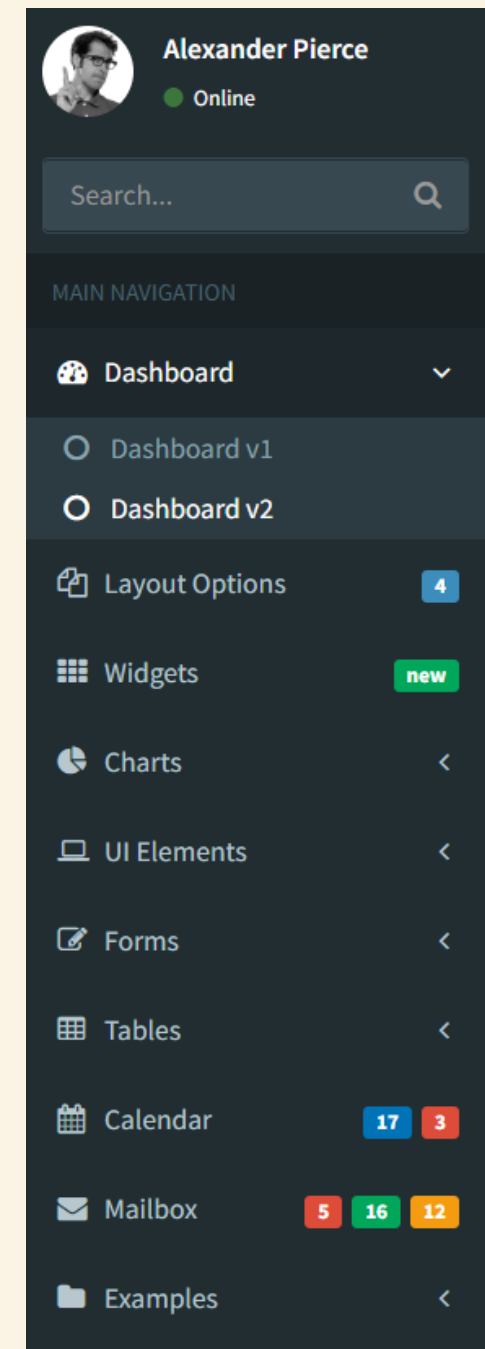
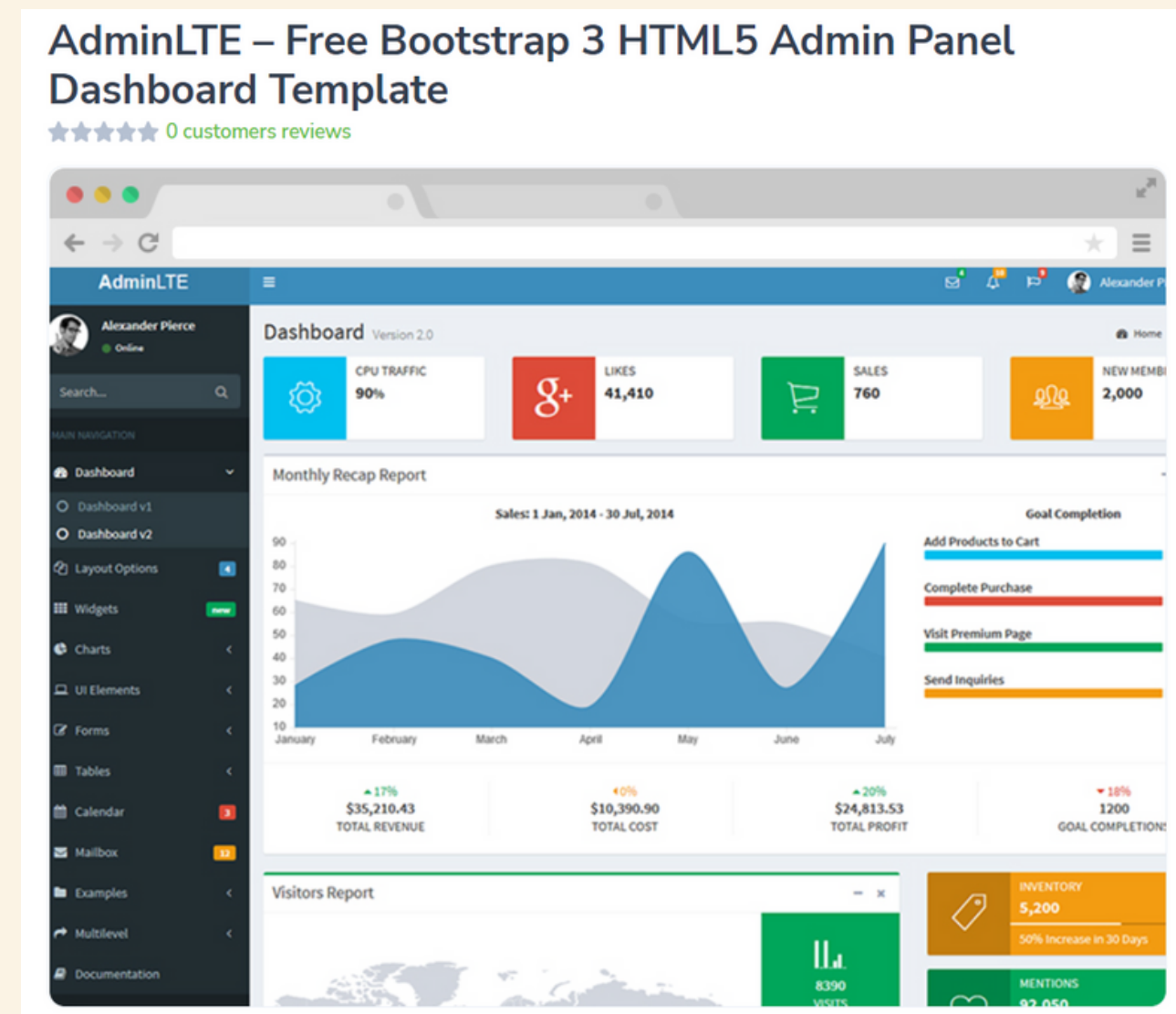
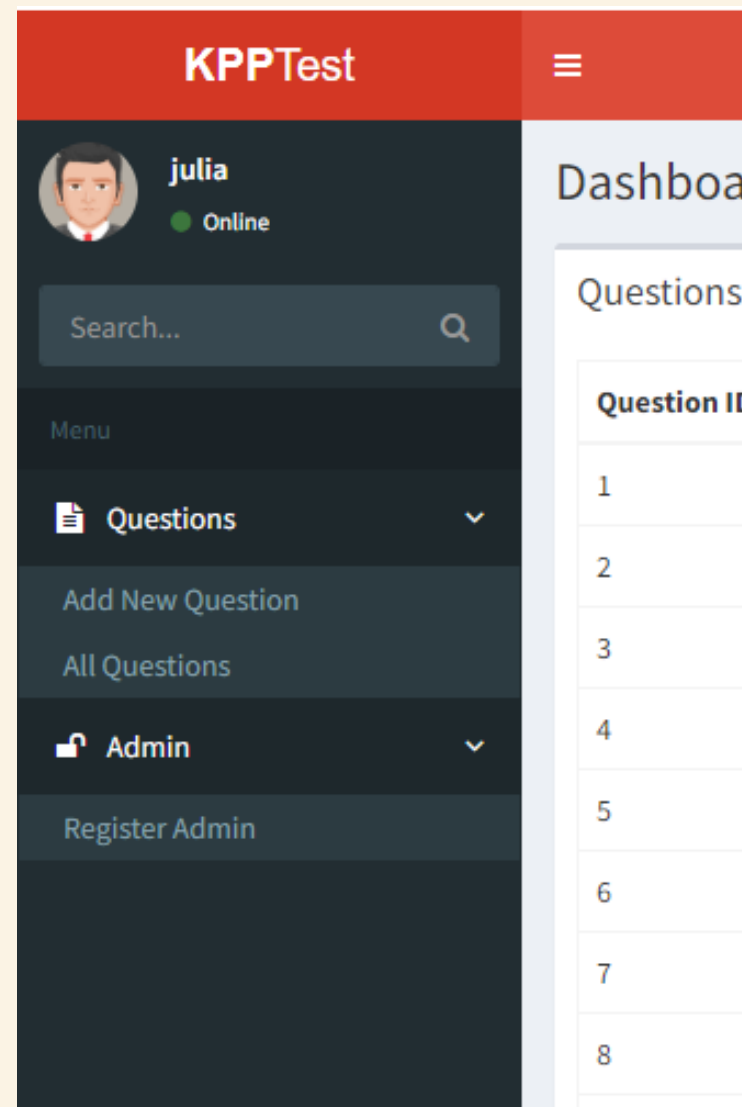
1. Layout design using Bootstrap and CSS

a. Collapsible sidebar toggle

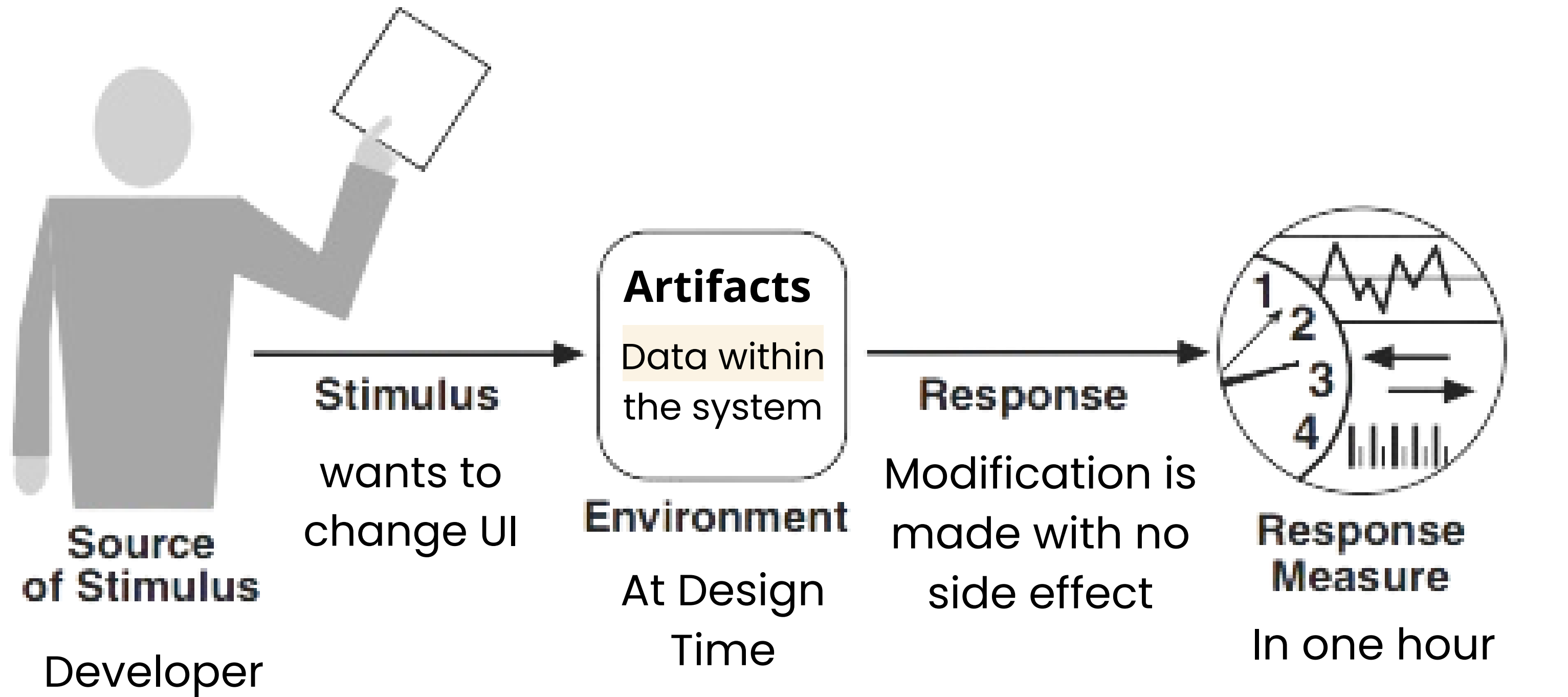
(<https://getbootstrap.com/docs/5.0/examples/sidebars/>)

b. AdminLTE Admin Dashboard Template

(<https://adminlte.io/blog/free-admin-panels/>)



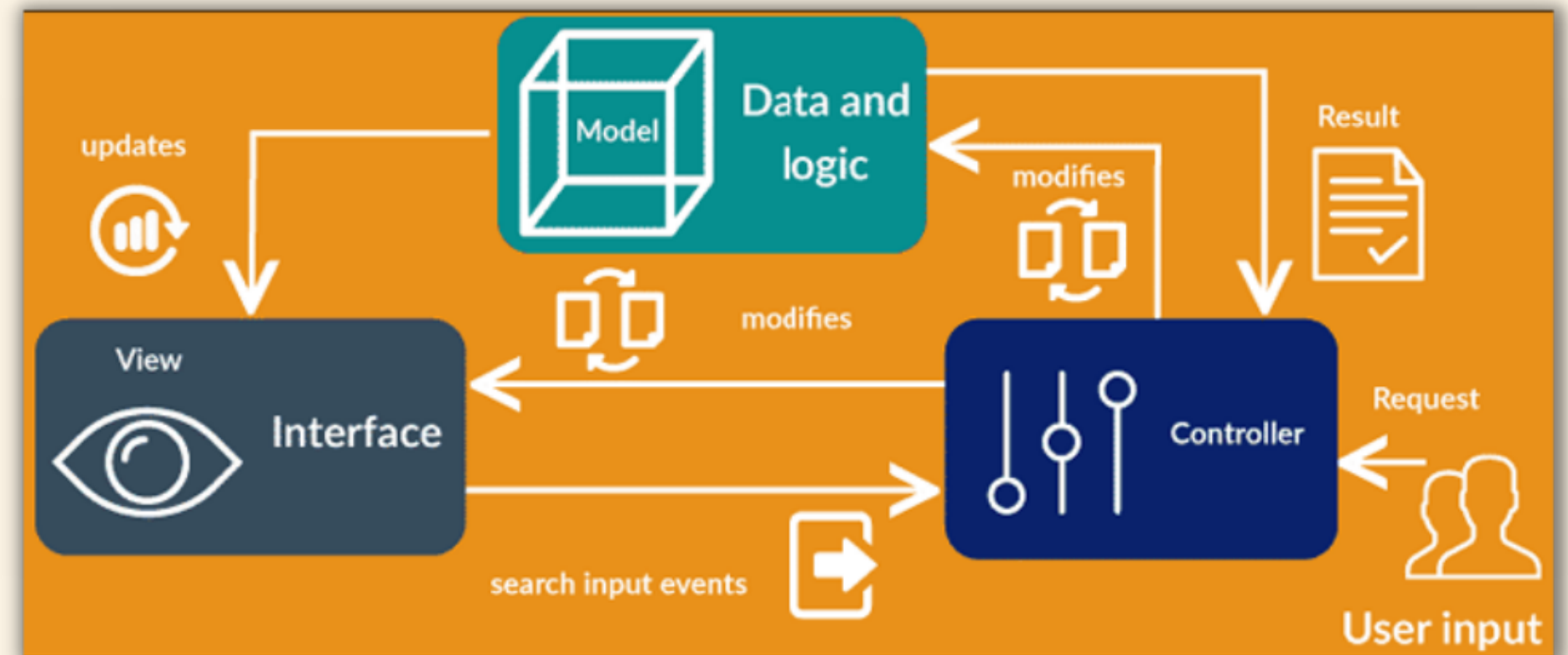
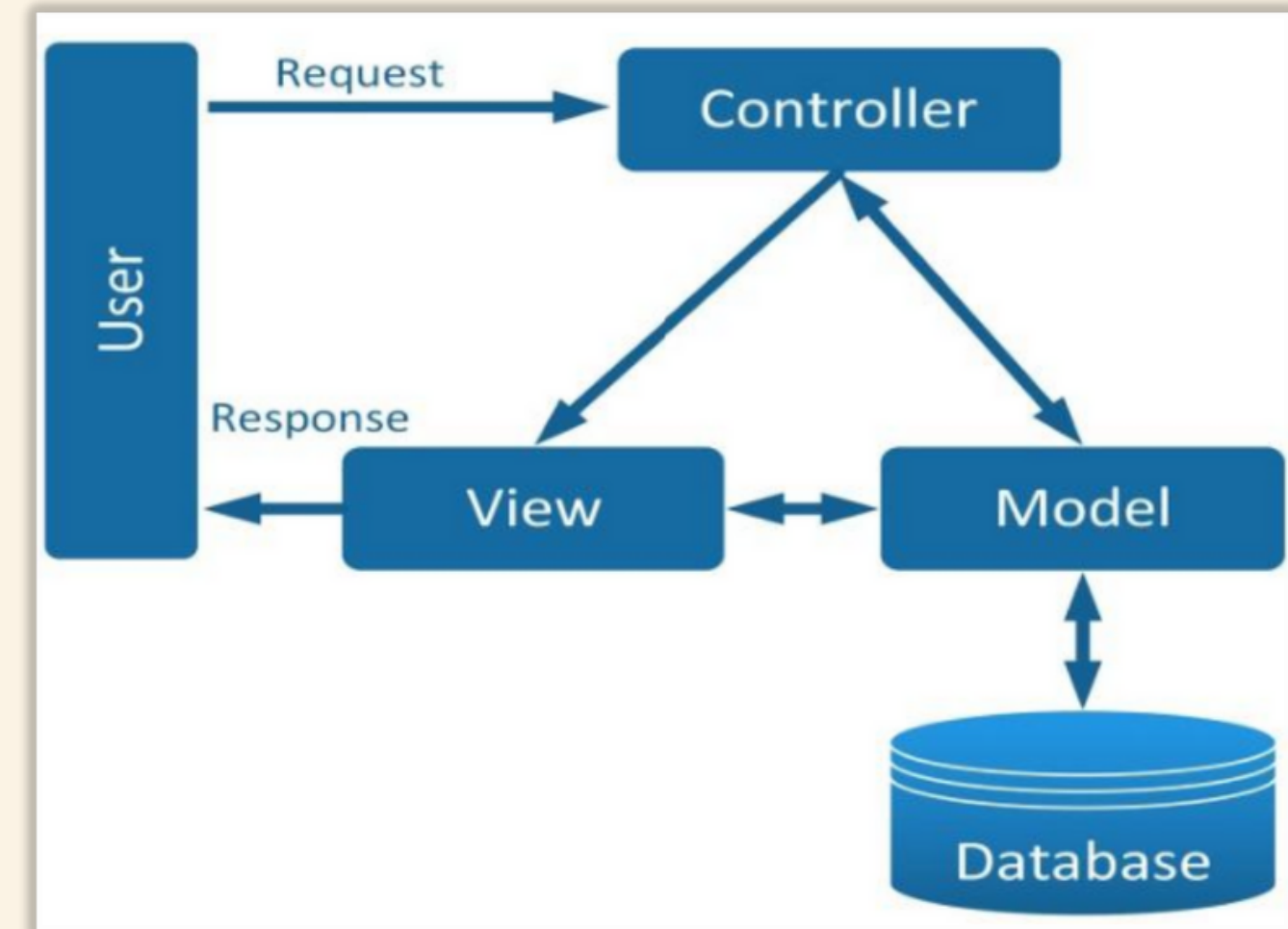
SCENARIO - MODIFIABILITY



IMPLEMENTATION - MODIFIABILITY

1. Implying MVC Framework

By means of MVC architecture, the 'View' is **separated** from other application and solely responsible for the **user interface**. In case of changing the interface or adding functionality, only the view is affected.



IMPLEMENTATION - MODIFIABILITY

2. HTML manipulation using php to reduce redundancy

```
$content = '  
    <div class="row">  
    <!-- left column -->  
    <div class="col-md-12">  
        <!-- general form elements -->  
        <div class="box box-primary">  
            <div class="box-header with-border">  
                <h3 class="box-title">Update Questions</h3>  
            </div>  
            <!-- /.box-header -->  
            <!-- form start -->  
            <form role="form">  
                <div class="box-body">  
                    <div class="form-group">  
                        <label for="question">Question</label>  
                        <input type="text" class="form-control" id="question" name="question" placeholder="Enter Question">  
                        <label for="ans1">Real answer</label>  
                        <input type="text" class="form-control" id="ans1" name="ans1" placeholder="Enter Option 1">  
                    </div>  
                </div>  
                <!-- /.box-body -->  
                <div class="box-footer">  
                    <input type="button" class="btn btn-primary" onClick="UpdateQuestion()" value="Update"></input>  
                </div>  
            </form>  
        </div>  
        <!-- /.box -->  
    </div>  
</div>';
```

```
<section class="content container-fluid">  
    <?php  
        echo $content;  
    ?>  
</section>
```

main page (master.php)

other body content (create.php)

IMPLEMENTATION - MODIFIABILITY

3. Interactive table using datatables

a.DataTables read data from JSON data source obtained by Ajax.
(<https://datatables.net/>)

Question ID	Question	
1	Apakah nombor yang ditunjukkan dalam gambar tersebut?	Edit Remove
2	Apakah nombor yang ditunjukkan dalam gambar tersebut?	Edit Remove
3	Apakah nombor yang ditunjukkan dalam gambar tersebut?	Edit Remove

```
$(document).ready(function(){
$.ajax({
  type: "GET",
  url: "./api/question/read.php",
  dataType: 'json',
  success: function(data) {
    var response="";
    for(var i in data){

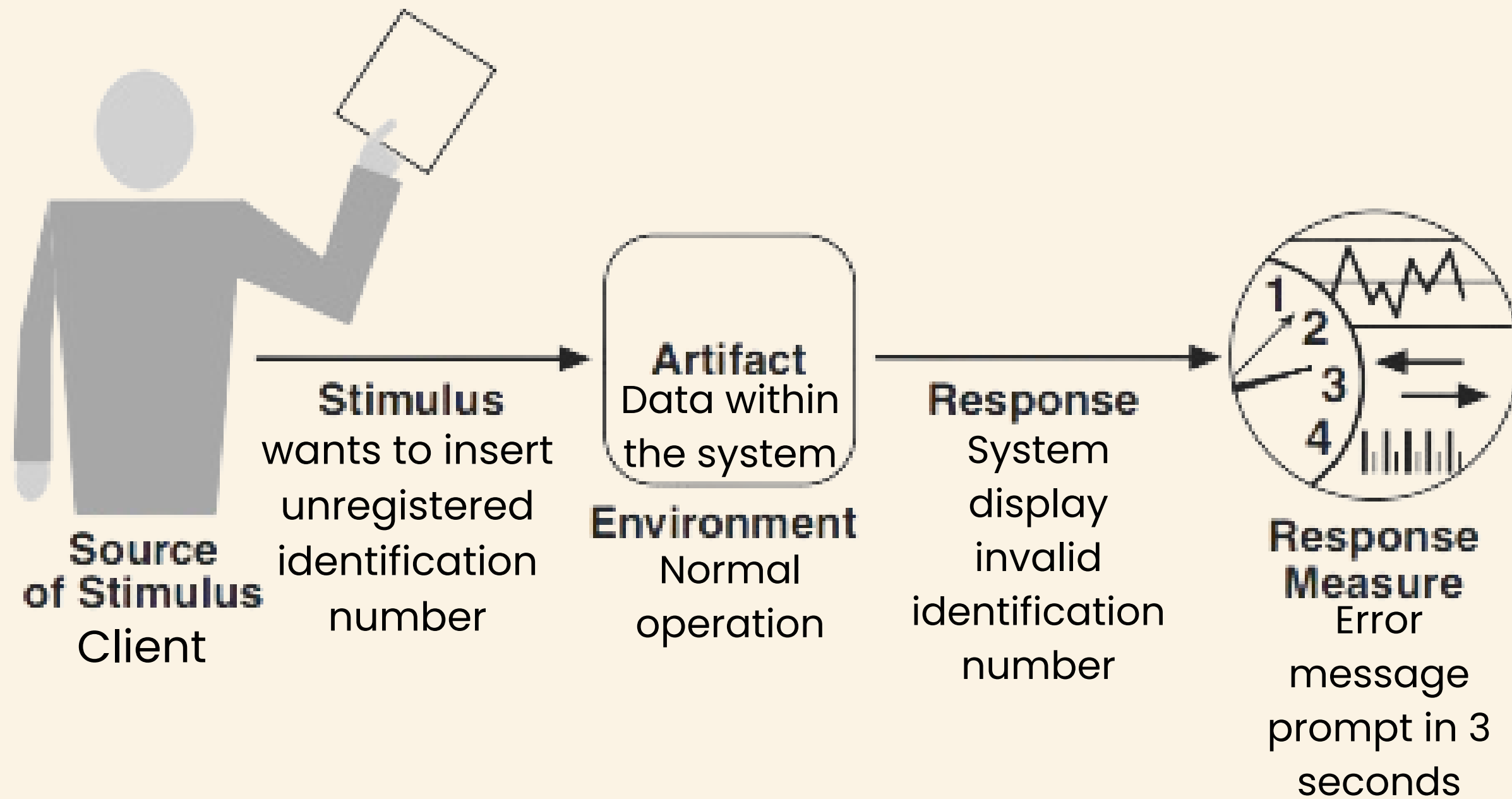
      response += "<tr>" +
        "<td>" + (parseInt(i)+1) + "</td>" +
        "<td>" + data[i].question + "</td>" +
        "<td><a href='update.php?question_no="+data[i].question_no+"'>Edit</a> | <a href='#' onClick=Remove('"+data[i].question_no+"'')>Remove</a></td>" +
        "</tr>";
    }
    $(response).appendTo($("#questions"));
  }
});
});
```

```
// doctors array
$question_arr=array();
$question_arr["question"]=array();

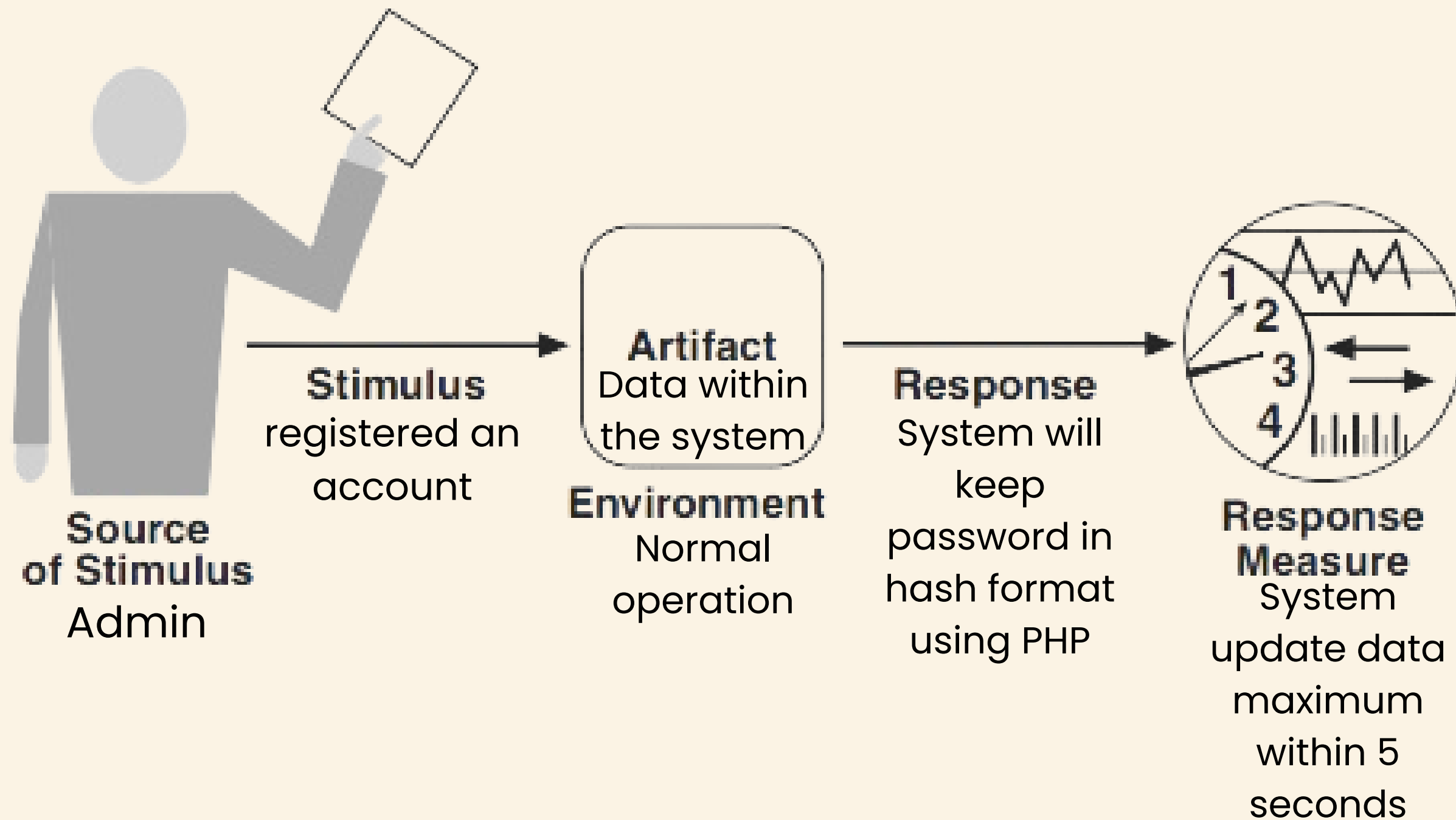
while ($qrow = $stmt->fetch(PDO::FETCH_ASSOC)){
  extract($qrow);
  $question_item=array(
    "question_no" => $question_no,
    "question" => $question,
  );
  array_push($question_arr["question"], $question_item);
}

echo json_encode($question_arr["question"]);
```

SCENARIO - SECURITY (INVALID IDENTIFICATION NUMBER)

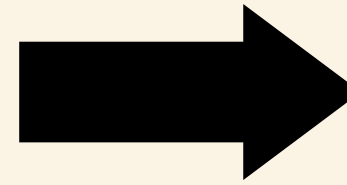


SCENARIO - SECURITY (PASSWORD HASHING)



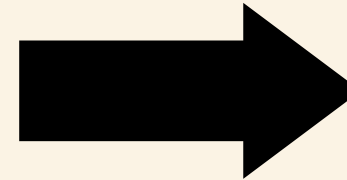
IMPLEMENTATION - SECURITY

Confidential
information must be
secured



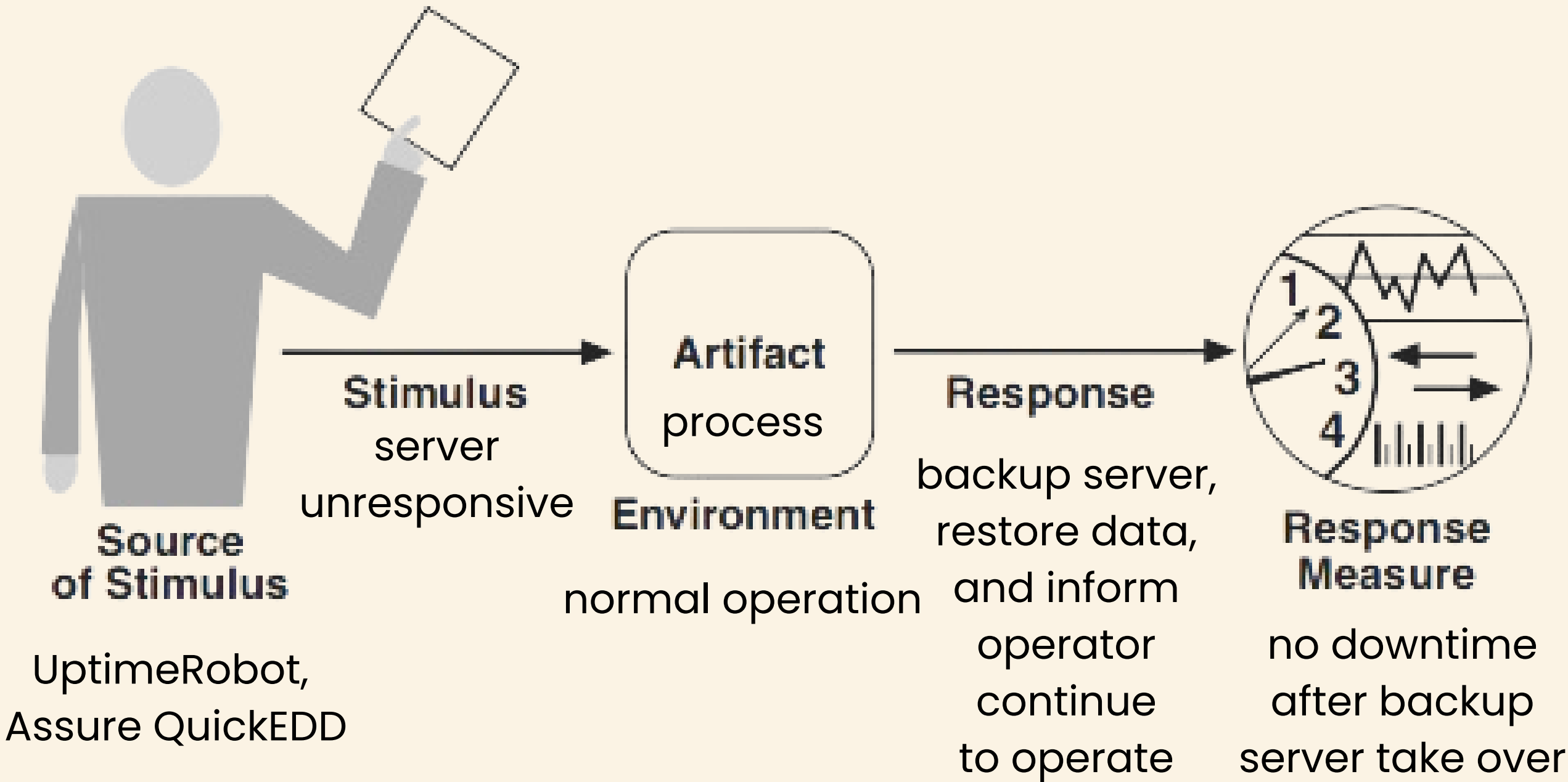
Use Hashing function
in PHP to hide
password in database

User needs to insert
authenticate
identification number



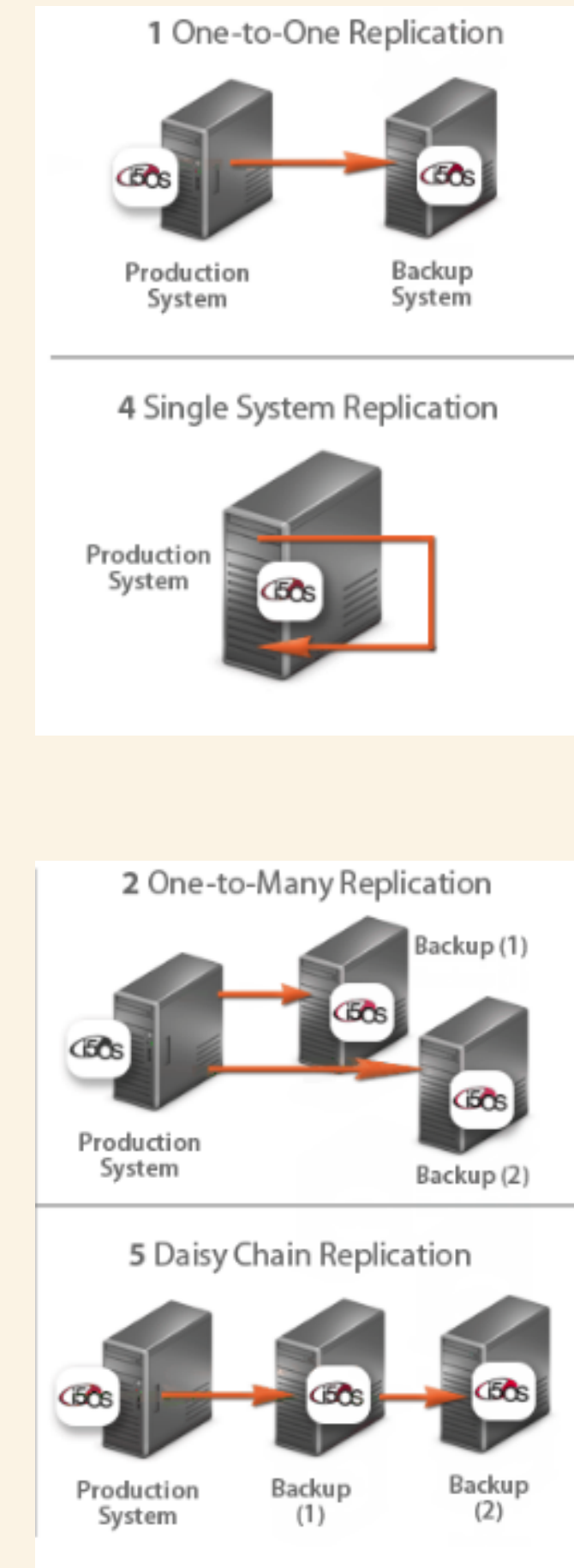
Use Membercheck
framework to verify
valid identification
number

SCENARIO - AVAILABILITY



IMPLEMENTATION - AVAILABILITY

- Provide a backup server to take over failed server and prevent any downtime.
- Assigning UptimeRobot as a network uptime monitoring which will recheck constantly if the system is truly down before alerting.
- Implement an automated failover to restore data automatically using Assure QuickEDD. This is done by moving the data and object in real time to local or remote backup server.
- Thus, availability of the system is enhanced.





PROTOTYPE

How the system is architected to achieve quality attributes

USABILITY

**Selamat Datang ke Ujian
KPP 2022**



Admin? Login here

Mula Menjawab!

MODIFIABILITY

Homepage of user admin

KPPTest

Menu

- Questions
 - Add New Question
 - All Questions
- Admin
 - Register Admin

DashboardWelcome to Admin Dashboard

Questions List

Question ID	Question	
1	Apakah nombor yang ditunjukkan dalam gambar tersebut?	Edit Remove
2	Apakah nombor yang ditunjukkan dalam gambar tersebut?	Edit Remove
3	Apakah nombor yang ditunjukkan dalam gambar tersebut?	Edit Remove
4	Apakah bentuk yang ditunjukkan dalam gambar tersebut?	Edit Remove
5	Apakah bentuk yang ditunjukkan dalam gambar tersebut?	Edit Remove
6	Apakah bentuk yang ditunjukkan dalam gambar tersebut?	Edit Remove
7	Apakah nombor yang ditunjukkan dalam gambar tersebut?	Edit Remove
8	Apakah nombor yang ditunjukkan dalam gambar tersebut?	Edit Remove
9	Apakah warna yang ditunjukkan dalam gambar tersebut?	Edit Remove
10	Apakah maksud bagi tanda isyarat lalu lintas tersebut?	Edit Remove
11	Apakah maksud bagi tanda isyarat lalu lintas tersebut?	Edit Remove
12	Apakah maksud bagi tanda isyarat lalu lintas tersebut?	Edit Remove
13	Apakah maksud bagi tanda isyarat lalu lintas tersebut?	Edit Remove
14	Apakah maksud bagi tanda isyarat lalu lintas tersebut?	Edit Remove
15	Apakah maksud dan tindakan yang perlu diambil apabila nampak tanda isyarat lalu lintas tersebut?	Edit Remove
16	Apakah maksud bagi tanda isyarat lalu lintas tersebut?	Edit Remove
17	Apakah maksud bagi tanda isyarat lalu lintas tersebut?	Edit Remove
18	Apakah maksud bagi tanda isyarat lalu lintas tersebut?	Edit Remove
19	Apakah maksud bagi tanda isyarat lalu lintas tersebut?	Edit Remove

MODIFIABILITY

Admin adding new questions

KPPTest

julia

Online

Search...

Menu

Questions

Admin

Dashboard

Welcome to Admin Dashboard

KPP Test > Dashboard

Add Question

Question

Enter Question

Answer 1

Enter Option 1

Answer 2

Enter Option 2

Answer 3

Enter Option 3

Submit

MODIFIABILITY

Changing on the master.php will be directly implemented

KPPTest

julia

Online

Search...

Menu

Questions

Admin

Dashboard

Welcome to Admin Dashboard

KPP Test > Dashboard

Questions List

Question ID	Question	
1	Apakah nombor yang ditunjukkan dalam gambar tersebut?	Edit Remove
2	Apakah nombor yang ditunjukkan dalam gambar tersebut?	Edit Remove
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4	Apakah bentuk yang ditunjukkan dalam gambar tersebut?	Edit Remove
5	Apakah bentuk yang ditunjukkan dalam gambar tersebut?	Edit Remove
6	Apakah bentuk yang ditunjukkan dalam gambar tersebut?	Edit Remove
7	Apakah nombor yang ditunjukkan dalam gambar tersebut?	Edit Remove
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14	Apakah maksud bagi tanda isyarat lalu lintas tersebut?	Edit Remove
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16	Apakah maksud bagi tanda isyarat lalu lintas tersebut?	Edit Remove
17	Apakah maksud bagi tanda isyarat lalu lintas tersebut?	Edit Remove
18	Apakah maksud bagi tanda isyarat lalu lintas tersebut?	Edit Remove

MODIFIABILITY

Adding new functionality

KPPTest

julia

Online

Search...

Menu

Questions

Add New Question

All Questions

Admin

Register Admin

Dashboa

Questions

Question ID
1
2
3
4
5
6
7
8

KPPTest

julia

Online

Search...

Menu

Questions

Add New Question

All Questions

Admin

Register Admin

Statistics

Pie Charts

Dashboard


Questions List

Question ID
1
2
3
4
5
6
7
8
9
10



MODIFIABILITY

Dynamic panel of displaying questions



Answer all questions

1. Apakah nomor yang ditunjukkan dalam gambar tersebut?

☐ 8

☐ 2

☐ 6

2. Apakah nomor yang ditunjukkan dalam gambar tersebut?

☐ 4

☐ 2

☐ 5

3. Apakah nomor yang ditunjukkan dalam gambar tersebut?

☐ 44

☐ 45

☐ 55

4. Apakah nomor yang ditunjukkan dalam gambar tersebut?

☐ 84

☐ 24

☐ 74

5. Apakah bentuk yang ditunjukkan dalam gambar tersebut?

☐ Bulat

☐ Segitiga

☐ Kapal

6. Apakah bentuk yang ditunjukkan dalam gambar tersebut?

☐ Segiempat dan Segitiga

SECURITY

Invalid Identification Number

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**Selamat Datang ke Ujian KPP
2022**



Sila masukkan butiran diri

IC Number :

Gender : ☒ Male ☐ Female

Cancel **Register**



**Selamat Datang ke Ujian KPP
2022**



Nombor IC tidak sah

IC Number :

Gender : ☐ Male ☐ Female

Cancel **Register**



Password Hashing

Admin Log In

☒ Remember me

New here? [Sign up!](#)

<div><div>←T→</div><div>▼</div></div>		email	PASSWORD	name
<input type="checkbox"/>	Edit Copy Delete	ali@gmail.com	\$1\$rasmusle\$6r6NiRZ3zwJj6GOlr7cxc0	ali



AVAILABILITY

Scenario : In the middle of available time of the system, the server went down.
Due to the UptimeRobot and Assure QuickEDD as backup server, the system will continue to be available for user to use.

Selamat Datang ke Ujian KPP 2022



Sila masukkan butiran diri

IC Number :

Gender : ☒ Male ☐ Female



Answer all questions

1. Apakah nombor yang ditunjukkan dalam gambar tersebut?

☐ 8
☐ 2
☐ 6

2. Apakah nombor yang ditunjukkan dalam gambar tersebut?

☐ 4
☐ 2
☐ 5

3. Apakah nombor yang ditunjukkan dalam gambar tersebut?

☐ 44
☐ 45
☐ 55

4. Apakah nombor yang ditunjukkan dalam gambar tersebut?

☐ 84
☐ 24
☐ 74

5. Apakah bentuk yang ditunjukkan dalam gambar tersebut?

☐ Bulat
☐ Segitiga
☐ Kapal

6. Apakah bentuk yang ditunjukkan dalam gambar tersebut?

☐ Segiempat dan Segitiga

THANK YOU
